

REMARKS

Claims 1 through 6 are presently pending in this application. Claims 1 and 3 through 6 have been amended; entry of the amendments to these claims is respectfully requested. Unless otherwise indicated below, these amendments are made for clarity or to place the claims and claimed subject matter in better form.

Also, the specification has been amended as previously set forth herein; entry of the amendments to the specification is respectfully requested.

Also, submitted concurrently herewith is a Letter To The Office Draftsman and accompanying Figs. 1 through 3 and 5 amending these figures. In response to the objection to the drawings set forth in the final Office action (Paper No. 12, pages 1 and 2), Figs. 1 - 3 have been labeled as "Prior Art", as well as the other previously requested corrections have again being respectively presented in these accompanying drawing figures, in addition to other amendments. Therefore, withdrawal of the objection to the drawings and entry of the aforementioned drawing corrections is respectfully requested. Indication in subsequent Office correspondence as to the acceptance of the drawing corrections proposed in the Letter is respectfully requested, to enable Applicant to timely arrange for the corrections to be made prior to the date for payment of any issue fee.

In response to the objection to claim 1, claim 1 has been amended and includes an

amendment addressing this objection. Therefore, withdrawal of the objection to claim 1 is respectfully requested.

Claim 6 was rejected under 35 U.S.C. § 112, first paragraph. In response, claim 6 has been amended and includes amendments addressing this rejection of 35 U.S.C. § 112, first paragraph. Also, the specification has been amended and includes amendments also addressing this rejection. Therefore, withdrawal of 35 U.S.C. § 112, first paragraph, rejection of claim 6 is respectfully requested.

Also, claim 6 was rejected under 35 U.S.C. § 112, second paragraph. In response, claim 6 has been amended, as well as the specification, addressing this rejection under 35 U.S.C. § 112, second paragraph. Therefore, withdrawal of 35 U.S.C. § 112, second paragraph, rejection of claim 6 is respectfully requested.

Claims 1, 2 and 6 were rejected under 35 U.S.C. §103 (a) over U. S. Patent No. 5,572,660 to Jones. This rejection is respectfully traversed.

Also, claims 3 through 5 were rejected under 35 U.S.C. §103 (a) over Jones '660 in view of U. S. Patent No. 5,809,206 to Seki. This rejection is also respectfully traversed.

The aforementioned 35 U.S.C. §103 (a) rejection of claims 1, 2 and 6 and the aforementioned

35 U.S.C. §103 (a) rejection of claims 3 through 5 will be considered collectively.

First, with respect to Seki '206, it is respectfully submitted that Seki '206 identifies a 35 U.S.C. § 102(e) date of April 10, 1997 and a PCT publication date of October 17, 1996. Therefore, it is respectfully submitted that the Seki '206 102(e) date and PCT date each are after the filing date of the corresponding Korean Patent Application No. 40202/1996, filed in the Korea Industrial Property Office on September 16, 1996, and from which the above identified application claims priority under 35 U.S.C. §119.

Further, it is respectfully submitted that neither Jones '660 nor Seki '206 disclose Applicant's memory system as respectively recited in amended independent claim 1 or dependent claim 3 nor disclose Applicant's redundant array of inexpensive disks (RAID) system, as respectively recited in amended independent claim 6. For example, it is respectfully submitted that neither Jones '660 nor Seki '206 disclose:

a plurality of defect-adaptive memory devices, each of the plurality of defect-adaptive memory devices having a first region and a second region, the first region for sequentially storing parity information needed for data recovery and the second region for storing data, and a plurality of caches, each of the plurality caches being respectively connected to a corresponding one of the plurality of defect-adaptive memory devices, each of the plurality of caches for storing parity information needed for data recovery for a corresponding one of the plurality defect-adaptive memory devices, as respectively recited in amended independent claim 1;

the parity information needed for data recovery being stored and being sequentially arranged from the most outer cylinder on a recording medium in each corresponding one of the plurality of defect-adaptive memory devices, as respectively recited in amended dependent claim 3;

a plurality of disk drives, each of the plurality of disk drives including a region having a plurality of data blocks for storing data and another region having a predetermined number of parity blocks for storing parity information needed for data recovery, and a plurality of caches, each of the plurality of caches being respectively connected to a corresponding one of said plurality of disk drives for storing parity information needed for data recovery, as respectively recited in amended independent claim 6.

In contrast, the Office action states with respect to Jones '660 that “. . . Jones does not disclose the plurality of caches storing the information needed for data recovery (instead teaching one cache for this, 213), and does not disclose reading, writing, and obtaining the information needed for data recovery from each memory device (instead teaching from one memory device, 214-8)” (Office action, Paper No. 12, page 4), with respect to independent claim 1. Also, with respect to independent claim 6, the Office action states with respect to Jones '660 that “. . . Jones does not specifically disclose that each disk drive stores data and parity . . .” (Office action, Paper No. 12, page 6). Further, with respect to dependent claim 3, the Office action states that Jones '660 “. . . does not disclose that the information needed for data recovery in sequentially arranged from the most outer cylinder” (Office action, Paper No. 12, page 6).

In contrast, Jones '660 discloses a fault tolerant disk array subsystem that includes a plurality of data drives for storing real data and a parity drive for storing redundant data. (Abstract).

Further, the Office action referred to column 3, lines 15-18 and column 2, lines 46-53 of Jones to support that the claimed subject matter of independent claims 1 and 6 would be obvious in view of Jones. This position of the Examiner is respectfully traversed. While Jones '660 teaches that with respect to a level 5 RAID, the data and parity information is distributed per sector across all the disks in the array, and that level 5 RAID technique may be provided that utilizes a similar write-back catching scheme for storing parity information (column 2, lines 47-53; column 3, lines 15-18), it is respectfully submitted that in a RAID structure of level 5, data is striped across in each drive array, and parity data is distributed and stored in all drives in order to remove bottleneck phenomenon when data is written. In such RAID structure, since the data written in all drives must be read in order to calculate the parity when the data is written, its speed is slower. Further, it would not be obvious from Jones '660 to arrive at the claimed subject matter of amended independent claims 1 and 6, in that Jones '660 does not disclose the aforementioned features of amended independent claims 1 and 6, as well as the Office action recognizing, from the aforementioned discussion, that Jones '660 does not disclose a plurality of caches storing information needed for data recovery and does not disclose reading, writing and obtaining information needed for data recovery from each memory device, as well as not disclose that each disk drive stores data and parity.

Further, with respect to dependent claim 3, while Seki '206 discloses that encoded video and

audio data and the error correction code data positioned in the outermost track is read out from the hard disk based on the data representing the recording position, and that the reproducing head moves from external circumference to internal circumference of hard disk with regularity, (column 10, lines 40-47 and lines 61-65 and, column 13, lines 48-57), Seki '206 does not disclose the parity information needed for data recovery being stored and being sequentially arranged from the most the most outer cylinder on a recording medium in each corresponding one of the plurality of defect-adaptive memory devices, as recited in dependent claim 3.

Further, in contrast, Seki '206 discloses that error correction code reproduction means for reproducing error correction code data, which is generated for each data block as many as the reproduction means out of the plural data blocks and recorded on the other disk recoding medium, from the other disk recording medium (emphasis added, column 2, lines 25 through column 3, line 17).

Therefore, contrary to the present invention, neither Jones '660 nor Seki '206 discloses that parity information is written in a corresponding cache connected to a corresponding disk drive. Also, neither Jones '660 nor Seki '206 discloses that a plurality of caches are provided to store parity information, and that a separate cache is assigned to each drive to thereby improve the processing speed in the storing operation.

Therefore, in view of the foregoing discussion, it is respectfully submitted that claims 1, 2

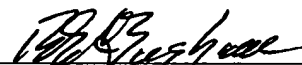
and 6 are not obvious Jones '660, and that claims 3 through 5 are not obvious over Jones '660 in view of Seki '206. Therefore, withdrawal of the 35 U.S.C. §103 (a) rejection of claims 1, 2 and 6, and withdrawal of the 35 U.S.C. §103 (a) rejection of claims 3 through 5 are respectfully requested.

Wherefore, in view of the foregoing, reconsideration and allowance of claims 1 through 6 are respectfully requested.

A fee of \$110.00 is incurred by the filing of a Petition for a one-month extension of time. Applicant's check drawn to the order of the Commissioner accompanies this response. Should the check become lost or detached from the file, the Commissioner is authorized to charge the Deposit Account No. 02-4943 and advise the undersigned attorney accordingly. Also, should enclosed check be deemed to be deficient or excessive in payment, the Commissioner is authorized to charge or credit our Deposit Account and notify the undersigned attorney of any such transaction.

In view of the foregoing amendments, arguments and remarks, all claims are deemed to be allowable and this application is believed to be in condition to be passed to issue. Should any questions remain unresolved, the Examiner is requested to telephone Applicant's attorney.

Respectfully submitted,



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